Agricultural Land Use, Suitability and Status in the Cariboo Region: Method and Findings

Province of British Columbia
Ministry of Lands, Parks and Housing

Canadian Cataloguing in Publication Data

Main entry under title:
Agricultural land use, suitability and status in the Cariboo region

Report by Talisman Land Resource Consultants. Cf. Acknowledgements.
ISBN 0-7726-0246-8

1. Land use capability for agriculture - British Columbia - Cariboo Region. 2. Land use, Rural - British Columbia - Cariboo Region. I. Talisman Land Resource Consultants. II. British Columbia. Ministry of Lands, Parks and Housing.

HD319.B7A375 1985 333.76'15'097112 C85-092062-0

ACKNOWLEDGEMENTS

The method and data presented in this report are the work of Talisman Land Resource Consultants on contract to the Ministry of Lands, Parks and Housing. Assistance of staff of the Ministries of Environment and Agriculture and Food in regional workshops is also gratefully acknowledged.

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1.0 INTRODUCTION

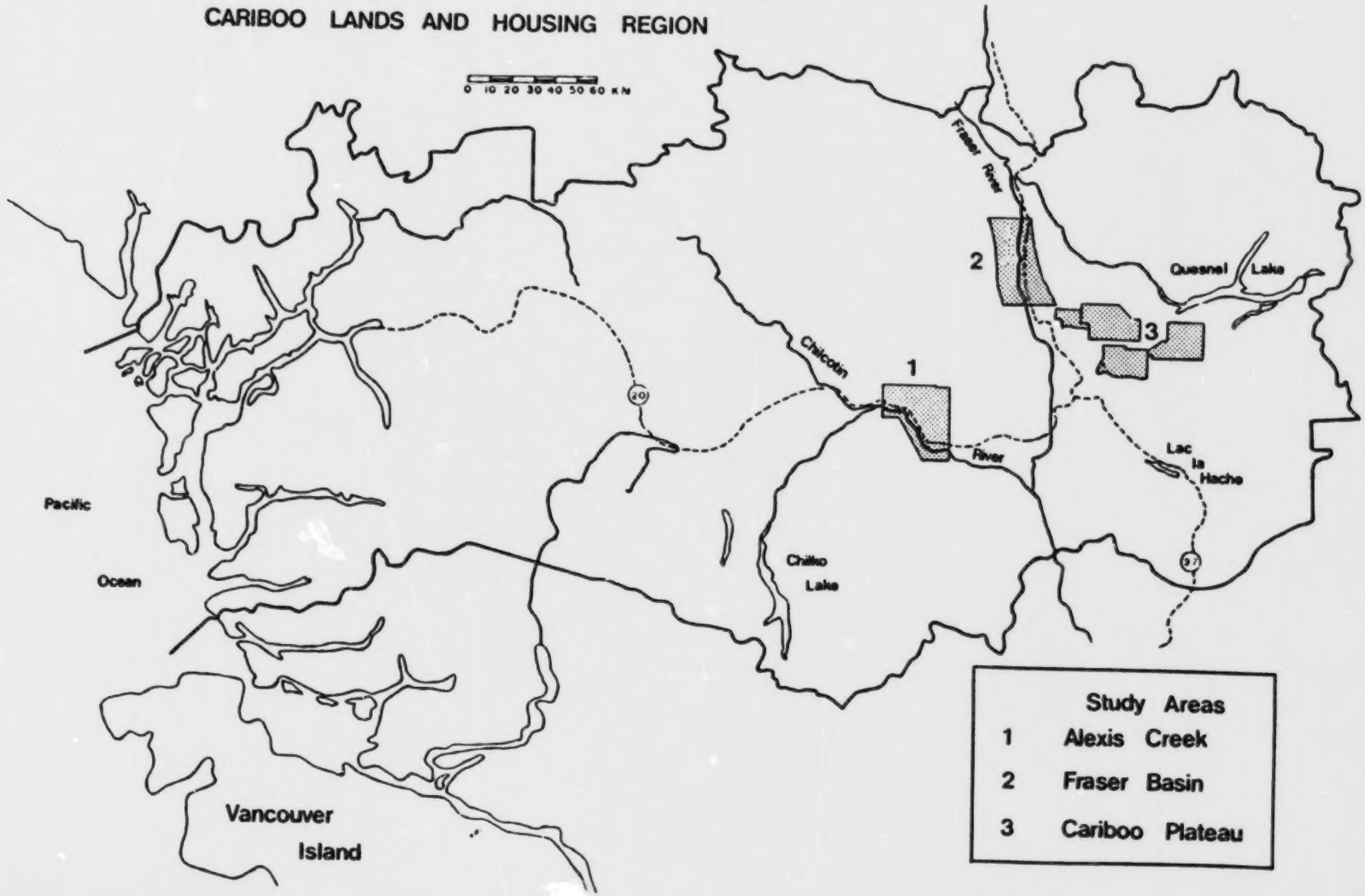
This report describes the land status, land use and agricultural suitability of lands in three sample areas of the Agricultural Land Reserve in the Cariboo Region. A methodology for extrapolating these statistics to a regional level is developed and applied. This information was used by the Ministry of Lands, Parks and Housing in the evaluation of the Crown agricultural land disposition program for the Cariboo Region.

The sample areas considered in this study were chosen because of the availability of new or updated land inventory information and because they were of specific interest as centres of agricultural development within the Cariboo Region (Locational Map). While this sample design precluded a statistically rigorous approach to projecting sample area findings to the larger region, it did provide the basis for carrying out an arithmetic extrapolation.

As well as outlining this regional extrapolation methodology, the report provides a detailed description of various land inventory classification procedures and available inventory data sets. In addition, new data sets are provided for each the sample areas and for the Cariboo Region. This information may be of value to other users interested in addressing various agricultural land use and development issues and has therefore been made available in a published form.

The methodology and results of phase one are presented in Sections 2.0 and 3.0 of the report. Section 4.0 provides a description of the methodology used for extrapolating the sample area data to a regional level. Regional results are presented in Section 5.0. Composite maps of land status, suitability and use for each of the sub-areas are provided in the pockets at the back of the report.

CARIBOO REGION AGRICULTURAL EVALUATION SAMPLE AREAS



2.0 PHASE I: OBJECTIVES AND METHODOLOGY

2.1 Objectives

The major objective of Phase I was the determination of the present utilization of agricultural lands in the Cariboo based on the compilation of statistics of present agricultural land use, land status, and land suitability for agriculture for three predetermined sample areas. These sample areas are located in each of the major physiographic units within the region: the Chilcotin Plateau (Alexis Creek Sample Area), the Fraser Basin, and the Cariboo Plateau. Specific objectives were:

* to compile mapped information on land status, present land use, and land capability for agriculture in each sample area;

* to review and revise, where appropriate, existing information on land capability for agriculture in each sample area, with particular emphasis on the Alexis Creek area;

* to devise an agricultural suitability classification system in consultation with regional government agency staff;

* to map agricultural suitability in each sample area using the agricultural suitability classification;

* to produce autopositive composite maps depicting land status, present land use, and agricultural suitability within each sample area; and

* to tabulate summary and cross-classification data on the areal extent of all categories of land status, land use, and agricultural suitability within each of the sample areas and for all of the sample areas combined.

2.2 Base Maps

The base maps used in this project are derived from 1:50,000 National Topographic System (NTS) maps.

2.3 Land Status

Land status was delineated on prints of the base maps. Land status categories included:

* vacant Crown land;
* private land and Indian reserves;
* agricultural leases with purchase options;
* grazing leases, hay permits, and agricultural leases without purchase options; and
* government reserves.

This information was transferred to the autopositive copies of the base maps using alternate cross-hatching to depict the status categories.

To conform to available regional aggregate information on land use and land capability for agriculture, a decision was made to confine the actual area sampled to Agricultural Land Reserve (ALR) lands within the sample areas. ALR boundaries were taken from 1:50,000 maps provided by the British Columbia Agricultural Land Commission (BCALC).

2.4 Present Land Use

The most recent land use mapping in the sample areas was that completed by Talisman in 1979 for the British Columbia Select Standing Committee on Agriculture (SSCA) using 1974-1976 aerial photography. Because Census statistics indicate a 28% increase in the area of improved agricultural land in the Cariboo (Cariboo Census Division) between 1976 and 1981 a decision was made to update land use mapping using the most recent aerial photography.

The aerial photography used to update land use included:

* Sample Area A - Alexis Creek: 1979, 1:40,000 B.C. Government photography.
* Sample Area B - Fraser Basin: 1979, 1:60,000 B.C. Government photography, except for minor portions along the eastern boundary of the sample area, where Federal Government photography (various scales) was used.

* Sample Area C - Cariboo Plateau: 1982, 1:60,000 B.C. Government photography.

Present land use was delineated directly on the aerial photos by stereoscopic interpretation. Land use categories delineated, and their mapping symbols, included:

* forages, grains, improved pasture (map symbol G): this category includes land recently cultivated for the production of hay, cereal and feed grains and included improved pasture lands which are actively cultivated;

* horticulture and other row crops (H): this category includes land currently being used for cultivation of row crops including small fruits, nursery stock, tree fruits, vegetables and silage corn;

* rough pasture, open range (P): land in this category includes unimproved pasture, reverted lands not recently cultivated due to abandonment, and natural grasslands. Lands in this class are not necessarily grazed by livestock and include areas with some degree of light tree cover. Cleared utility corridors were included in this category and were identified by the addition of the modifier 'u' to the land use symbol;

* forested areas (F): this class includes all forest lands and areas covered with native vegetation. Recent clear cut and selectively logged areas are classified within this category, however, where such logging is evident the modifier 'c' was added to the use symbol; and

* non-productive lands (NP): this category comprises lands and water bodies which have been interpreted as non-usable for cultivation or grazing, either for reasons of lack of capability (rock surfaces, eroded steep slopes, recent gravel bars, dunes, beaches, and permanent water bodies) or because of the presence of an irreversible present use (built-up areas, farm yards, mines, quarries, tailings ponds, borrow pits and other developed areas). Wetland areas that were judged to be able to be improved for agricultural use were not included in this category.

Wetland areas judged to have agricultural suitability were identified by the addition of the modifier 'w' to the appropriate use symbol.

Because the correlation between land status and land use is of major importance in this study, land use mapping was carried out in considerable detail. All land use areas exceeding 2 ha (approximately 0.1 cm^2 at 1:50,000 scale) were mapped.

Difficulties encountered in the photo-interpretation of land use centered around the following classification distinctions:

* rough pasture (P) versus improved pasture (G): generally this distinction was made on the basis of the presence or absence of cultivation patterns or changes in micro-topography that could be ascribed to former cultivation;

* agricultural clearing in progress (C) versus rough pasture (P): while clearing in progress was identified by the presence of piled slash or windrows, in many cases windrows were still present but the land appeared to be seeded as rough pasture or, in some cases, even cultivated. In these cases, the unit was classified according to its apparent use, rather than as clearing in progress; and

* non-productive wetland areas (NP) versus undeveloped wetlands with agricultural suitability (Fw), especially in situations where the wetland unit is within a larger suitability polygon that is indicated to be suitable for agricultural use: this distinction is very difficult to make without detailed site checking. Where doubt existed, these areas were interpreted as being non-productive.

Mapped information on the aerial photos was transferred to working prints of the base maps using an Aus Jena transfer scope. After all land use polygons were finalized they were traced onto autopositive pin-registered overlays of the base maps and map symbols were added.

2.5 Agricultural Suitability Mapping

2.5.1 Rationale

It was decided that an agricultural suitability approach to determine land quality was preferable to solely using agricultural capability ratings as a measure of land quality. This approach offered several advantages.

Over the past few years, the Ministry has undertaken several capability and arability mapping studies covering significant portions of the sample areas. Because this mapping was carried out subsequent to the British Columbia Land Inventory (BCLI) capability mapping program and was intended to revise and update that information the Ministry requested that, where available, this more recent mapping be used. Although the updated capability mapping provided by the Ministry for the Big and Hart Lakes area and the Miocene area were compatible with using capability ratings only as a means of determining land quality, the arability mapping for the Alexandria, Narcosli-Tingley and Horsefly area could not be readily translated into capability classes, and was more compatible with a suitability approach to classifying land quality.

Additionally, the use of suitability ratings allowed the flexibility to make suitability decisions, based on a consensus of opinion from professionals knowledgeable with the resources of each sample area. This approach also had the advantage that it allowed revision of the land quality base information without further detailed field work.

The suitability approach was also thought to be more useful as an indication of agricultural land quality than would be an approach based solely on agricultural capability information because the latter is based on biophysical limitations to crop production only and does not reflect economic impediments. The suitability approach facilitates the inclusion of economic considerations in determining land quality.

2.5.2 Classification

The agricultural suitability classification system utilized for this study was formulated by Talisman and Ministry staff and reviewed by the inter-agency workshop participants. The classification system is based on the following major suitability factors:

* Canadian Land Inventory (CLI) climate capability for agriculture ratings (updated where new information was available);

* Canadian Land Inventory soil capability for agriculture ratings (updated where new information was available);

* determination of irrigation and drainage improvement feasibility based on an overview assessment for each sample area using existing information and the consensus approach involving knowledgeable professionals. This pre-feasibility analysis determined where improved or unimproved climate/soils capability ratings were used in the suitability analysis; and

* in each sample area developability considerations such as costs of providing access and any other factors which would result in high development costs, were reviewed and suitability ratings were downgraded where these considerations indicated considerable cost impediments to development. This review was undertaken through the consensus approach relying on inter-agency staff familiar with the areas.

The following suitability classes, and corresponding mapping symbols, were defined for the study:

* high suitability (H): these lands are suitable for the production of a wide range of crops. The land capability for agriculture rating is at least Class 3 based on both climatic and soil limitations. Drainage and/or irrigation requirements are deemed feasible for the individual operation. No overriding developability considerations, such as access limitations, adversely affect the

agricultural development potential of the unit and, in the case of wetlands, development costs are expected to be low;

* moderate suitability (M): these lands are suitable for a narrower range of crops generally limited to grains and forages although some specialty crops such as oilseeds or corn crops may be possible. The land capability for agriculture rating is at least Class 4 based on climatic and soil limitations, either in the unimproved state, or where feasible, under improved conditions. Developability constraints such as higher servicing costs and, in the case of wetlands, improvement costs, are somewhat more severe than for those areas in the high suitability category but are judged to be still within the bounds of economic feasibility;

* low suitability (L): lands in this class are suited only to the production of forage crops either in the form of cultivated hay or as improved pasture. The land capability for agriculture ratings is at least class 5 based on climatic and soil limitations under unimproved conditions. For lands in this class no improvements are judged feasible on the part of the individual operator. Lands with biophysical capability ratings of better than Class 5 may be placed in this category if developability limitations are considered sufficiently severe to warrant downgrading; and

* nil suitability (N): lands in this class are not considered suitable for the production of any agricultural crops including improved pasture, either because of severe climatic and soil limitations or due to severe developability limitations which cannot be reasonably overcome by the individual operator.

Table 2.1 presents the suitability classification criteria. For a unit to receive a particular suitability rating it must meet all of the suitability criteria indicated for that

Table 2.1

AGRICULTURAL SUITABILITY CLASSIFICATION SYSTEM

SUITABILITY FACTORS	HIGH	MODERATE	LOW	NIL
1. CLI climate capability ratings (updated)	classes 1-3	classes 1-4	classes 1-5	classes 1-7
2. CLI soil capability ratings (revised where necessary)	classes 1-3	classes 1-4	classes 1-5	classes 1-7
3. Irrigation/Drainage feasibility	consensus pre-feasibility assessment to determine whether unimproved or improved ratings are used above			
4. Developability considerations				
a. access[1]	road access exists or there are no legal/ physical constraints to access	legal/physical constraints to access may exist but may be overcome at reasonable cost	legal/physical constraints to access may exist but may be overcome at reasonable cost	legal/physical constraints to access may exist which cannot be overcome at reasonable cost
b. wetlands	wetlands are suitable for development at low cost	wetlands are suitable for development at reasonable cost	wetlands are suitable for development at reasonable cost	wetlands are unsuitable for development or could only be developed at excessive cost

[1] low servicing ratios (area served/distance of service) are considered a physical constraint. Access constraints may result in a downgrading of suitability ratings by one or more classes.

Note: capability components of complex polygons are rated individually and, where appropriate a complex suitability rating is established.

suitability class. Lands with higher soil and climate capability ratings may be placed in the lower suitability classes because of suitability criteria other than capability. Thus, the range of allowed capability classes is shown to be wider for the lower suitability classes.

2.5.3 Complex Map Unit Ratings

Mapping units showing complex capability or arability ratings were assigned complex suitability ratings where appropriate.

2.5.4 Deriving Suitability

Table 2.2 lists the available information sources on agricultural capability and arability which were used to derive the agricultural suitability mapping for the sample areas.

Updated agricultural capability mapping prepared by the Ministry was utilized for the Big and Hart Lakes and Miocene sub-areas of the Cariboo Plateau sample areas. For the Big and Hart Lakes area the updated capability mapping is at a scale of 1:20,000 and follows BCLI methodology. For the Miocene area the updated capability mapping is at a scale of 1:50,000 and also follows BCLI methodology.

For the Big Camp Creek and Horsefly sub-areas of the Cariboo Plateau and for the Narcosli-Tingley and Alexandria portions of the Fraser Basin sample area, recent arability mapping carried out by the Ministry served as the basis for the suitability analysis. In all cases the arability mapping provided qualitative indications of potential arability although the classification system and scale of mapping used varies between areas.

For the Alexis Creek sample area and the Fraser River lowland portion of the Fraser Basin sample area, no updated capability or arability mapping was available. In these areas, existing BCLI 1:50,000 agricultural capability mapping served as the basis for the interpretation of agricultural suitability.

Table 2.2

AVAILABLE AGRICULTURAL CAPABILITY AND ARABILITY INFORMATION

AREA NAME	APPROX. AREA (km2)	NTS 1:50 000 MAPS	PHYSIO-GRAPHIC REGION	EXISTING AGRICULTURAL LAND INVENTORY MAPPING		
				CAPABILITY	ARABILITY	SSCA
ALEXIS CREEK						
Alexis Creek	820	920/15 920/14(S) 93B/3(N) 93B/2	Chilcotin Plateau	BCLI 1:50 000 (old)	N/A	1:50 000 (revised BCLI)
FRASER BASIN						
Narcosli-Tingley	1230	N half 93B/7 93B/10 93B/15	Fraser Basin	BCLI 1:50 000 (old)	MLPH 1:50 000 (recent)	1:50 000 (revised BCLI)
Alexandria		S half 93B/8 93B/1		MLPH 1:50 000 (recent)	MLPH 1:50 000 (recent)	1:50 000 (revised BCLI)
Fraser River Lowlands		93B/8,B/9 B/16		BCLI 1:50 000 (old)	N/A	1:50 000 (revised BCLI)
CARIBOO PLATEAU						
Big & Hart Lakes	1250	93A/5 93B/8	Cariboo Plateau	MLPH 1:20 000 (recent)	N/A	1:50 000 (revised BCLI)
Big Camp Creek		93B/8		MLPH 1:50 000 (recent)	MLPH 1:50 000 (recent)	1:50 000 (revised BCLI)
Miocene		93A/4 93A/5		RAB 1:20 000 (recent)	N/A	1:50 000 (revised BCLI)
Horsefly		93A/5		MLPH 1:31 680 (recent)	MLPH 1:31 680 (recent)	1:50 000 (revised BCLI)

Revised agricultural capability mapping at a scale of 1:50,000, compiled by Talisman for the SSCA, is available for all sample areas. This was reviewed and utilized in many instances to provide further information for the suitability analysis, particularly where inconsistencies were apparent in the more recent mapping.

Two problems were encountered in deriving suitability ratings from the available information sources. The first centered on the lack of a consistent approach to the arability mapping carried out in some of the sample areas and the lack of backup documentation as to what methodologies were employed and what classification systems were used in deriving the qualitative arability ratings. This led to difficulties in interpreting agricultural suitability ratings from the arability mapping. These problems were largely overcome through the consensus workshop approach outlined below, which allowed the individuals responsible for the arability mapping programs to aid in the extrapolation of the arability ratings to the suitability ratings.

The second problem encountered resulted from the lack of correlation between the capability and arability mapping units along the boundaries where the various mapping projects adjoin. This problem was overcome by stereoscopically interpreting landforms and correlating mapping units along these boundaries accordingly. The major limitations arose where the mapping unit delineation were significantly different making correlation difficult. Where these major differences occurred the reliability of the suitability mapping was significantly reduced.

On the basis of the existing information, preliminary suitability ratings were derived for all sample areas utilizing the suitability classification system described above. These preliminary suitability maps were reviewed by the inter-agency group of professionals during a two day workshop held in Williams Lake. For each sample area the available information sources on capability and arability were reviewed and suitability ratings were assigned based on a consensus of opinion. In many cases

the existing capability or arability ratings were revised on the basis of a particular professional's knowledge of the resources of an area. These changes ranged from very site-specific applications, such as downgrading a particular unit that exhibited a much more severe limitation due to stoniness than was indicated by the existing mapping, to revising larger areas covering many soil units that had been generally underrated or overrated on the existing mapping.

The consensus approach to determining suitability ratings also focussed on the improvability of particular areas through irrigation and drainage works. Potential irrigation water supplies were discussed with Water Management Branch personnel familiar with each particular sample area. In situations where existing flows are fully recorded and the potential for providing new or additional storage works within the system is considered non-existent or limited, it was assumed that no further irrigation water would be available from that source.

For sources where existing flows are not fully recorded, potential for new storage exists within the system, or diversion of available water from an adjacent watershed seems possible, a consensus was reached as to which additional lands could be realistically irrigated from available sources.

In most areas the potential irrigable land can be relatively easily serviced and it was assumed that the costs of supply would not be prohibitive. The uplands adjacent to the Chilcotin and Fraser Rivers, however, present special situations in that the cost of providing irrigation water from these sources will be the limiting factor to additional irrigation rather than the amount of water available. In the case of the Chilcotin River a consensus was reached that a reasonable and practical elevation limit for lands which could be irrigated from this source is 90 m above the river. This limit was agreed upon following a discussion about existing systems in the area familiar to the workshop participants, and estimation of

approximate supply costs and producers' estimated ability to pay for irrigation supply systems. The consensus of the workshop was that a representative producer in the Alexis Creek area could pay a maximum of $250 per ha annually for the supply of irrigation water (excluding on-farm costs). Based on a conceptual least-cost irrigation model (200 ha block, 47 litres/ha design flow, total dynamic head of 150 m, pump station costs of $300 per installed horsepower, mainline costs equivalent to 1370 m of 36 cm diameter pipe at $92/m, annual capital ownership costs at 15% of capital costs, and energy costs based on 95 days of operation), it was estimated that, in general, this supply margin could deliver water up to a height of 90 m above the river. Above this height supply costs would generally exceed $250/ha and irrigation would not be economical. For the Fraser River the same approach was used, however, a limit of 120 m above the river chosen, primarily because of the better climate for crop production on the Fraser River benchlands. In both areas lands above the cut-off elevation were assigned suitability ratings reflecting non-irrigated conditions, unless other surface water sources were available.

Potential drainage improvements were addressed in a similar manner. For each area where drainage could improve the agricultural suitability, the local knowledge of the workshop participants was used to reach a consensus as to whether or not drainage improvements could be reasonably and practically implemented. Existing drainage improvements and the general availability and costs of developing drainage system outlets were discussed. Where drainage was deemed not to be feasible, unimproved (with respect to drainage improvements only) capability ratings were used as a basis for deriving suitability ratings.

2.5.5 Map Presentation

The suitability mapping unit polygons were derived largely from the existing mapped information sources as described above. New mapping units were delineated only along the

boundaries between the various mapping projects where correlation was required.

Where the existing mapped information was at a scale of 1:50,000 the polygons were traced directly onto the base maps. Where the mapping scales of the existing information were different than 1:50,000 the map polygons were transferred to the 1:50,000 base maps utilizing a Map-O-Graph supplied by the B.C. Pedology Unit of Agriculture Canada.

In producing preliminary composite maps of present land use, land status and agricultural suitability, it became apparent that too much detail in the present land use and suitability mapping resulted in illegible portions of the final map in areas of complex soils and intensive land use. This was particularly evident in the Fraser River lowland area. To improve map legibility and allow for accurate digitizing, some generalization of suitability units was required. Where these problems were encountered suitability polygons representing areas less than 25 ha (1 cm2) in area, and not different by more than one suitability class from the surrounding map units were deleted from the suitability overlay. Because of their limited size and numbers, the deletion of these units does not appreciably affect the aggregated area statistics produced by this study.

2.6 Production of Composite Maps

The work described in the above sections produced, for each sample area, a base map and two overlays depicting the following information:

* base map: topographic, geographic, and cadastral information from original NTS bases, land status, and sample area boundaries.

* 1st overlay: suitability polygons and labels.

* 2nd overlay: ALR boundaries within sample areas, land use polygons and labels, legend and title block.

In the case of Sample Areas A and B, vacuum-frame prints of these maps were used to digitize areal

estimates, as described in the following section. This allowed correction of any labelling errors noted during digitizing before composite maps were produced. In the case of Sample Area C, map size was too large to enable a vacuum-frame print to be made, necessitating two separate composites to be produced, one for the digitizing work, and a corrected version after digitizing was completed.

Composite maps were made photographically, with the base map information screened back by 70% (30% screen) and the 1st overlay (suitability information) screened back by 50% (50% screen). The second overlay was composited full strength (unscreened). Several difficulties were encountered in this process because of the large map sizes involved.

2.7 Digitization and Tabulation of Results

Areal estimates were digitized on a Hewlett-Packard 9825 digitizer provided by the Computing Services Branch of the B.C. Ministry of Environment, using software developed in 1978 for Talisman's ALR inventory work for the SSCA. This program allows polygons to be classified according to a maximum of 7 land status categories, 8 capability or suitability classes, and 6 land use categories, and will easily store, aggregate and sort several thousand polygon areas.

This program allows three optional treatments for complex capability or suitability ratings. The area of complex polygons can be prorated according to the indicated proportions between the ratings, or the entire area can be classified using either the best suitability/capability rating, or the dominant rating. In order for the statistics generated in this study to be compatible with available regional statistics on land capability and use, areas of complex polygons were prorated.

No difficulties were encountered in the digitizing process other than that mapping detail and polygon numbers resulted in considerable time requirements. The three map sheets contained approximately 7500 polygons.

2.8 Methodological Considerations

For any similar work carried out in different areas in the future, the following methodological revisions should be considered:

* duplicate autopositive bases should be made from the original bases of the 1:50,000 SSCA mapping series. These bases are produced on the 1:50,000 NTS grid and display topographic/cadastral information and revised BCLI ratings for all ALR lands. Oversize bases should be avoided;

* land use mapping should be carried out by transferring observed updated land use (interpreted from recent air photos) directly to prints of the SSCA composite autopositive maps (showing base, capability, and use) using visual means only. Polygon and labelling changes should then be made on duplicate erasable autopositives of the SSCA land use overlays (showing ALR boundaries, land use polygons and labels). ALR boundaries should be updated using 1:50,000 prints available from the BCALC. These revisions would delete any use of a transfer scope or similar transfer device, and would reduce a considerable amount of drafting of land use polygons and ALR boundaries;

* land suitability mapping should be carried out on prints of the SSCA composite maps based on the revised BCLI mapping shown on the prints, any new or more detailed mapping, and the findings of a consensus review of mapped information. Suitability polygons and labels should then be transferred to an overlay of the base maps;

* all cultivation or agricultural clearing should be included in one cultivation category. This revision will reduce photo-interpretation and digitizing time requirements; and

* if consistent with planning objectives, only two land status categories should be considered: "alienated or reserved", and "available for alienation". Failing this, as few status categories as possible should be defined. This revision will reduce digitizing requirements considerably.

These revisions should lead to significant economies both in terms of required time and budget to compile, map, and tabulate inventory statistics for any given sample area. However, mapping detail and reliability will be reduced.

3.0 PHASE I: STUDY FINDINGS

3.1 Combined Sample Area Statistics

Tables 3.1 to 3.3 present summary tabular findings for the combined sample areas. Each of these tables is a different cross-classification of two of the three variables classified (status, use, suitability) and reports statistics on all lands classified within the sample areas (166,863 ha). These tables are derived from values in the following 5 tables, Tables 3.4 to 3.8, which present separate cross-classifications of land suitability by present land use for each of the five land status categories.

The data have been checked for consistency with expected land inventory patterns and, in this regard, appear to be acceptable. Most apparent aberrations are minor and can be explained as either compilation or inventory error, map presentation error (particularly error resulting from overlay mapping), or the consequences of methodological limitations (particularly resulting from the treatment of suitability complexes). Unusual land use patterns such as trespass or abandoned use of Crown lands are possible explanations in some instances.

3.2 Individual Sample Area and Sub-Area Statistics

Similar aggregates to those presented in Tables 3.1-3.8 for the combined sample areas have also been prepared for each of the three sample areas and for sub-areas in the Cariboo Plateau sample area. Statistics for the three sample areas are contained Tables 3A.1 to 3C.8 (pages 25 to 36). Statistics for the four sub-areas are presented in Appendix A.

ALL SAMPLE AREAS

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3.1
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	6598	3967	3267	338	0	14170
H HORTICULTURE, ROW CROPS	128	1	5	0	0	134
P ROUGH PASTURE, OPEN RANGE	4808	4094	6213	2084	0	17199
C AGRICULTURAL CLEARING IN PROGRESS	62	10	77	53	0	202
F FORESTED AREAS	12788	22841	50896	37869	0	124394
NP NON-PRODUCTIVE LANDS	417	2061	1027	6031	1228	10764
TOTAL	24801	32974	61485	46375	1228	166863

Table 3.2
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of All Sample Areas ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	3605	17033	40183	35642	1191	97654
PRIVATE LAND, INDIAN RESERVES	18225	12024	15766	7976	37	54028
AGRICULTURAL LEASE WITH OPTION	539	1522	2156	851	0	5068
OTHER LEASES AND PERMITS	1386	1898	2744	1240	0	7268
GOVERNMENT RESERVES	1046	497	636	666	0	2845
TOTAL	24801	32974	61485	46375	1228	166863

ALL SAMPLE AREAS

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3.3
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	410	12923	341	481	15	14170
H HORTICULTURE, ROW CROPS	7	127	0	0	0	134
P ROUGH PASTURE, OPEN RANGE	3942	11044	1021	1020	172	17199
C AGRICULTURAL CLEARING IN PROGRESS	13	159	16	14	0	202
F FORESTED AREAS	86374	26441	3596	5454	2529	124394
NP NON-PRODUCTIVE LANDS	6908	3334	94	299	129	10764
TOTAL	97654	54028	5069	7268	2845	166863

Table 3.4
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(59% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	205	92	101	12	0	410
H HORTICULTURE, ROW CROPS	1	1	5	0	0	7
P ROUGH PASTURE, OPEN RANGE	604	647	2198	493	0	3942
C AGRICULTURAL CLEARING IN PROGRESS	3	0	3	7	0	13
F FORESTED AREAS	2751	14521	37375	31727	0	86374
NP NON-PRODUCTIVE LANDS	41	1772	501	3403	1191	6908
TOTAL	3605	17033	40183	35642	1191	97654

ALL SAMPLE AREAS

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3.5
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(32% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	6303	3537	2823	260	0	12923
H HORTICULTURE, ROW CROPS	127	0	0	0	0	127
P ROUGH PASTURE, OPEN RANGE	3766	2761	3175	1342	0	11044
C AGRICULTURAL CLEARING IN PROGRESS	43	6	64	46	0	159
F FORESTED AREAS	7651	5463	9246	4081	0	26441
NP NON-PRODUCTIVE LANDS	335	257	458	2247	37	3334
TOTAL	18225	12024	15766	7976	37	54028

Table 3.6
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(3% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	12	107	171	51	0	341
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	81	425	403	112	0	1021
C AGRICULTURAL CLEARING IN PROGRESS	16	0	0	0	0	16
F FORESTED AREAS	428	978	1552	638	0	3596
NP NON-PRODUCTIVE LANDS	2	12	30	50	0	94
TOTAL	539	1522	2156	851	0	5068

ALL SAMPLE AREAS

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3.7
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(4% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	67	230	171	13	0	481
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	242	259	427	92	0	1020
C AGRICULTURAL CLEARING IN PROGRESS	0	4	10	0	0	14
F FORESTED AREAS	1052	1385	2101	916	0	5454
NP NON-PRODUCTIVE LANDS	25	20	35	219	0	299
TOTAL	1386	1898	2744	1240	0	7268

Table 3.8
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(2% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	11	1	1	2	0	15
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	115	2	10	45	0	172
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	906	494	622	507	0	2529
NP NON-PRODUCTIVE LANDS	14	0	3	112	0	129
TOTAL	1046	497	636	666	0	2845

ALEXIS CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3A,1
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	1268	485	51	13	0	1817
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	2416	1599	2295	1064	0	7374
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	1977	3342	12578	3659	0	21566
NP NON-PRODUCTIVE LANDS	176	117	178	2137	15	2623
TOTAL	5837	5543	15102	6873	15	33370

Table 3A,2
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of Sample Area ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	1478	2498	13172	3704	15	20867
PRIVATE LAND, INDIAN RESERVES	3829	2666	1233	2604	0	10332
AGRICULTURAL LEASE WITH OPTION	69	61	105	0	0	235
OTHER LEASES AND PERMITS	308	234	529	242	0	1312
GOVERNMENT RESERVES	153	85	63	323	0	624
TOTAL	5837	5543	15102	6873	15	33370

ALEXIS CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3A.3
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	39	1767	0	5	6	1817
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	2480	4110	156	480	148	7374
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	17002	3306	76	753	419	21556
NP NON-PRODUCTIVE LANDS	1346	1149	3	74	51	2623
TOTAL	20867	10332	235	1312	624	33370

Table 3A.4
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(63% of All Sample Areas ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	23	8	6	2	0	39
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	434	380	1384	282	0	2480
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	988	2086	11655	2273	0	17002
NP NON-PRODUCTIVE LANDS	33	24	127	1147	15	1346
TOTAL	1478	2498	13172	3704	15	20867

ALEXIS CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3A.5
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(31% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	1239	477	40	11	0	1767
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	1716	1106	614	674	0	4110
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	759	993	547	1007	0	3306
NP NON-PRODUCTIVE LANDS	115	90	32	912	0	1149
TOTAL	3829	2666	1233	2604	0	10332

Table 3A.6
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(1% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	0	0	0	0
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	34	43	79	0	0	156
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	35	16	25	0	0	76
NP NON-PRODUCTIVE LANDS	0	2	1	0	0	3
TOTAL	69	61	105	0	0	235

ALEXIS CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3A.7
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(4% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	5	0	0	5
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	131	70	216	63	0	480
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	160	162	290	141	0	753
NP NON-PRODUCTIVE LANDS	17	1	18	38	0	74
TOTAL	308	233	529	242	0	1312

Table 3A.8
GOVERNMENT RESERVES: LAND SUITBILITY BY PRESENT LAND USE
(2% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	6	0	0	0	0	6
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	101	0	2	45	0	148
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	35	85	61	238	0	419
NP NON-PRODUCTIVE LANDS	11	0	0	40	0	51
TOTAL	153	85	63	323	0	624

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AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 38.1
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	5053	1461	826	13	0	7353
H HORTICULTURE, ROW CROPS	128	1	5	0	0	134
P ROUGH PASTURE, OPEN RANGE	2296	879	2087	669	0	5931
C AGRICULTURAL CLEARING IN PROGRESS	62	9	71	52	0	194
F FORESTED AREAS	10409	8450	22610	23027	0	64496
NP NON-PRODUCTIVE LANDS	216	1672	287	1653	95	3923
TOTAL	18164	12472	25886	25414	95	82031

Table 38.2
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	2099	7171	17279	21426	95	48070
PRIVATE LAND, INDIAN RESERVES	13660	4286	7148	3285	0	28379
AGRICULTURAL LEASE WITH OPTION	440	427	593	340	0	1800
OTHER LEASES AND PERMITS	1076	335	507	235	0	2153
GOVERNMENT RESERVES	889	253	359	128	0	1629
TOTAL	18164	12472	25886	25414	95	82031

FRASER BASIN

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 38.3
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of Sample Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	274	6963	27	83	6	7353
H HORTICULTURE, ROW CROPS	7	127	0	0	0	134
P ROUGH PASTURE, OPEN RANGE	1078	4448	158	223	24	5931
C AGRICULTURAL CLEARING IN PROGRESS	13	151	16	14	0	194
F FORESTED AREAS	43803	15737	1596	1814	1546	64496
NP NON-PRODUCTIVE LANDS	2895	953	3	19	53	3923
TOTAL	48070	28379	1800	2153	1629	82031

Table 38.4
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(59% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	182	61	26	5	0	274
H HORTICULTURE, ROW CROPS	1	1	5	0	0	7
P ROUGH PASTURE, OPEN RANGE	170	120	629	159	0	1078
C AGRICULTURAL CLEARING IN PROGRESS	3	0	3	7	0	13
F FORESTED AREAS	1735	5385	16509	20174	0	43803
NP NON-PRODUCTIVE LANDS	8	1604	107	1081	95	2895
TOTAL	2099	7171	17279	21426	95	48070

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AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3B.5
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(35% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	4787	1388	780	8	0	6963
H HORTICULTURE, ROW CROPS	127	0	0	0	0	127
P ROUGH PASTURE, OPEN RANGE	1963	715	1281	489	0	4448
C AGRICULTURAL CLEARING IN PROGRESS	43	5	58	45	0	151
F FORESTED AREAS	6543	2113	4850	2231	0	15737
NP NON-PRODUCTIVE LANDS	197	65	179	512	0	953
TOTAL	13660	4286	7148	3285	0	28379

Table 3B.6
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(2% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	12	6	9	0	0	27
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	38	17	88	15	0	158
C AGRICULTURAL CLEARING IN PROGRESS	16	0	0	0	0	16
F FORESTED AREAS	374	404	496	322	0	1596
NP NON-PRODUCTIVE LANDS	0	0	0	3	0	3
TOTAL	440	427	593	340	0	1800

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AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3B.7
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(3% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	67	5	11	0	0	83
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	111	25	81	6	0	223
C AGRICULTURAL CLEARING IN PROGRESS	0	4	10	0	0	14
F FORESTED AREAS	890	298	404	222	0	1814
NP NON-PRODUCTIVE LANDS	8	3	1	7	0	19
TOTAL	1076	335	507	235	0	2153

Table 3B.8
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(2% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	5	1	0	0	0	6
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	14	2	8	0	0	24
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	867	250	351	78	0	1546
NP NON-PRODUCTIVE LANDS	3	0	0	50	0	53
TOTAL	889	253	359	128	0	1629

CARIBOO PLATEAU

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3C.1
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	277	2021	2390	312	0	5000
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	96	1616	1831	351	0	3894
C AGRICULTURAL CLEARING IN PROGRESS	0	1	6	1	0	8
F FORESTED AREAS	402	11049	15708	11183	0	38342
NP NON-PRODUCTIVE LANDS	25	272	562	2241	1118	4218
TOTAL	800	14959	20497	14088	1118	51462

Table 3C.2
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of Sample Area ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	28	7364	9732	10512	1081	28717
PRIVATE LAND, INDIAN RESERVES	736	5072	7385	2087	37	15317
AGRICULTURAL LEASE WITH OPTION	30	1034	1458	511	0	3033
OTHER LEASES AND PERMITS	2	1330	1708	763	0	3803
GOVERNMENT RESERVES	4	159	214	215	0	592
TOTAL	800	14959	20497	14088	1118	51462

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3C.3
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of Sample Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	97	4193	314	393	3	5000
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	384	2486	707	317	0	3894
C AGRICULTURAL CLEARING IN PROGRESS	0	8	0	0	0	8
F FORESTED AREAS	25569	7398	1924	2887	564	38342
NP NON-PRODUCTIVE LANDS	2667	1232	88	206	25	4218
TOTAL	28717	15317	3033	3803	592	51462

Table 3C.4
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(56% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	23	69	5	0	97
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	147	185	52	0	384
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	28	7050	9211	9280	0	25559
NP NON-PRODUCTIVE LANDS	0	144	267	1175	1081	2667
TOTAL	28	7364	9732	10512	1081	28717

CARIBOO PLATEAU

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3C.5
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(30% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	277	1672	2003	241	0	4193
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	87	940	1280	179	0	2486
C AGRICULTURAL CLEARING IN PROGRESS	0	1	6	1	0	8
F FORESTED AREAS	349	2357	3849	843	0	7398
NP NON-PRODUCTIVE LANDS	23	102	247	823	37	1232
TOTAL	736	5072	7385	2087	37	15317

Table 3C.6
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(6% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	101	162	51	0	314
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	9	365	236	97	0	707
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	19	558	1031	316	0	1924
NP NON-PRODUCTIVE LANDS	2	10	29	47	0	88
TOTAL	30	1034	1458	511	0	3033

CARIBOO PLATEAU

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table 3C.7
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(7% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	225	155	13	0	393
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	164	130	23	0	317
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	2	925	1407	553	0	2887
NP NON-PRODUCTIVE LANDS	0	16	16	174	0	206
TOTAL	2	1330	1708	763	0	3803

Table 3C.8
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(1% of Sample Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	1	2	0	3
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	0	0	0	0	0
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	4	159	210	191	0	564
NP NON-PRODUCTIVE LANDS	0	0	3	22	0	25
TOTAL	4	159	214	215	0	592

4.0 PHASE II: OBJECTIVES AND METHODOLOGY

4.1 Study Objectives

The major objective of Phase II was the determination of the present utilization of agricultural lands in the region based on the extrapolation of the statistics compiled for the sample areas. Specific objectives were:

* to update Phase I statistics on land use within the combined sample area to 1983;

* to re-interpret and update to 1983 unpublished regional land use and agricultural capability data compiled by Talisman for the Select Standing Committee on Agriculture (SSCA) for all ALR areas within the Cariboo region, excluding the sample areas;

* to compile regional aggregates on status types; and

* to derive regional aggregates of land use by suitability class for each land status category based on a projection of status-use-suitability relationships observed within the sample areas.

4.2 Revisions to Phase I Findings

To provide a consistent, updated basis for projecting status-use-suitability relationships compiled for the combined sample area in Phase I, the following revisions to Phase I summary findings were carried out:

* the categories "forages, grains, improved pasture", "horticulture, row crops", and "agricultural clearing in progress" were combined; the new category was termed "cultivation and clearing";

* areas of cultivation and clearing occurring in the nil suitability category (due to the method of digitizing complex polygons) were transferred to the low suitability category. Because an attempt had been made in the Phase I mapping to limit such cross-classifications, this procedure did not involve significant areas; and

* the suitability categories "nil" and "water" and the land use category "non-productive lands" were deleted from further consideration because lands classified within these categories were not of interest to this study.

In addition to these revisions, the amount of land within the cultivation and clearing category for the combined sample areas was updated to 1983 terms based on development trends assessed within the individual sample areas and sub-areas. These trends were derived by tabulating the extent of cultivation and clearing shown on the SSCA maps and comparing these amounts to the tabulated figures from the Phase I mapping. By comparing the amounts of cultivation and the respective dates of photography used in interpreting the land use mapping, annual growth factors were derived for each sample area and sub-area. In some cases SSCA mapping was based on several different years of photography and it was not possible to ascertain which photography was used in specific areas. However, the SSCA mapping program included some field confirmations of older photography in areas where significant agricultural development was thought to be occurring. For this reason, in cases where a sample area of sub-area is covered by a range of SSCA photo dates, the more recent dates were generally used as the base dates from which to measure development growth rates. Using this approach, the following annual growth factors were estimated:

* Alexis Creek sample area: 1.221 (1975-1979)
* Fraser Basin sample area: 1.087 (1976-1979)
* Cariboo Plateau sample area: 1.091 (various dates)

The growth factor for the Cariboo Plateau Sample Area is itself based on the average (weighted by the relative amount of cultivation) of individual growth factors for each of the component sub-areas, including:

* Big Camp sub-area sample : 1.426 (1975-1982)
* Big & Hart sub-area sample: 1.036 (1972-1982)
* Miocene sub-area sample: 1.111 (1973-1982)
* Horsefly sub-area sample: 1.071 (1976-1982)

The very high growth factors for the Alexis Creek Sample Area and the Big Camp Creek Sub-Area were noted and examined. The growth factor for the Alexis Creek area was discarded as being unrepresentative of more recent rates of development. It is surmised that the

high rate of development that occurred in this area between 1976-1979 is largely associated with the introduction of 3-phase power during this period. Because it was felt that this development has substantially slowed in recent years, a lower growth factor of 1.105 was used in projecting Phase I findings to 1983 terms. This factor was derived by assuming that the calculated Alexis Creek rate of development would hold for the period to 1981 with no additional growth thereafter.

The high growth factor for the Big Camp Creek Sub-Area results from the low amount of cultivation (16 ha) mapped by the SSCA from 1975 photography. This factor was accepted but did not have a significant effect on the average Cariboo Plateau factor because of the weighting process employed.

The selected sample growth factors were applied to all area estimates of cultivation and clearing compiled from the Phase I work. For the Alexis Creek and Fraser Basin sample areas this involved multiplying the Phase I figures by the growth factor four times to escalate the observed 1979 land use to estimated 1983 levels. For the Cariboo Plateau sample area the Phase I figures were multiplied by the growth factor only once since the Phase I land use estimates in this sample area were based on 1982 photography.

Since increased cultivation and clearing can only come about through development of undeveloped lands, the area estimates for "rough pasture and open range", and "forested areas" were decreased by an amount equivalent to the projected increase in cultivation and clearing. New agricultural development was assumed to occur on these two categories of lands in proportion to their extent. This assumption resulted in most new cultivation being derived from the forested areas category.

Tables 4.1-4.5 present the re-worked Phase I findings for each land status category after all of the above revisions and adjustments have been carried out. Table 4.6 presents a corresponding summary for all land status categories combined. Although they are not needed for the purposes of carrying out the regional projections, figures for the individual sample areas are detailed on these tables.

Table 4.1

ALL SAMPLE AREAS COMBINED

SUMMARY TABLE FOR VACANT CROWN LAND:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING				
A: Alexis Creek	34	12	12	58
B: Fraser Basin	260	87	64	411
C: Cariboo Plateau	0	25	81	106
Subtotal	294	124	157	575
ROUGH PASTURE & OPEN RANGE				
A: Alexis Creek	431	379	1384	2194
B: Fraser Basin	166	119	628	913
C: Cariboo Plateau	0	147	183	330
Subtotal	597	645	2195	3437
FORESTED AREAS				
A: Alexis Creek	980	2083	11651	14714
B: Fraser Basin	1665	5361	16492	23518
C: Cariboo Plateau	28	7048	9132	16208
Subtotal	2673	14492	37275	54440
TOTAL OF ABOVE USES				
A: Alexis Creek	1445	2474	13047	16966
B: Fraser Basin	2091	5567	17184	24842
C: Cariboo Plateau	28	7220	9396	16644
Total	3564	15261	39627	58452

[1] Based on Phase I findings and the following assumed annual growth factors for increases in cultivated land:

* Alexis Creek Sample Area: 1.105 (from 1979)
* Fraser Basin Sample Area: 1.087 (from 1979)
* Cariboo Plateau Sample Area: 1.091 (from 1982)

Table 4.2

ALL SAMPLE AREAS COMBINED

SUMMARY TABLE FOR ALIENATED LAND:
LAND SUITABILITY BY PROJECTED 1983 LAND USE
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING				
A: Alexis Creek	1846	711	76	2633
B: Fraser Basin	6920	1945	1244	10109
C: Cariboo Plateau	302	1825	2456	4583
Subtotal	9068	4481	3776	17325
ROUGH PASTURE & OPEN RANGE				
A: Alexis Creek	1256	972	601	2829
B: Fraser Basin	1500	563	1211	3274
C: Cariboo Plateau	83	888	1225	2196
Subtotal	2839	2423	3037	8299
FORESTED AREAS				
A: Alexis Creek	602	893	535	2030
B: Fraser Basin	5043	1713	4567	11323
C: Cariboo Plateau	328	2257	3699	6284
Subtotal	5973	4863	8801	19637
TOTAL OF ABOVE USES				
A: Alexis Creek	3704	2576	1212	7492
B: Fraser Basin	13463	4221	7022	24707
C: Cariboo Plateau	713	4970	7380	13063
Total	17880	11767	15614	45261

Table 4.3

ALL SAMPLE AREAS COMBINED

SUMMARY TABLE FOR AGRICULTURAL LEASES WITH OPTIONS:
LAND SUITABILITY BY PROJECTED 1983 LAND USE
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING				
A: Alexis Creek	0	0	0	0
B: Fraser Basin	39	6	9	54
C: Cariboo Plateau	0	110	232	342
Subtotal	39	116	241	396
ROUGH PASTURE & OPEN RANGE				
A: Alexis Creek	34	43	79	156
B: Fraser Basin	37	17	88	142
C: Cariboo Plateau	9	361	233	603
Subtotal	80	421	400	901
FORESTED AREAS				
A: Alexis Creek	35	16	25	76
B: Fraser Basin	364	404	496	1264
C: Cariboo Plateau	19	553	1015	1587
Subtotal	418	973	1536	2927
TOTAL OF ABOVE USES				
A: Alexis Creek	69	59	104	232
B: Fraser Basin	440	427	593	1460
C: Cariboo Plateau	28	1024	1480	2532
Total	537	1510	2177	4224

Table 4.4

ALL SAMPLE AREAS COMBINED

SUMMARY TABLE FOR OTHER LEASES AND PERMITS:
LAND SUITABILITY BY PROJECTED 1983 LAND USE
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING				
A: Alexis Creek	0	0	7	7
B: Fraser Basin	94	13	29	136
C: Cariboo Plateau	0	245	183	428
Subtotal	94	258	219	571
ROUGH PASTURE & OPEN RANGE				
A: Alexis Creek	131	70	215	416
B: Fraser Basin	108	25	80	213
C: Cariboo Plateau	0	161	128	289
Subtotal	239	256	423	918
FORESTED AREAS				
A: Alexis Creek	160	162	289	611
B: Fraser Basin	866	294	397	1557
C: Cariboo Plateau	2	908	1394	2304
Subtotal	1028	1364	2080	4472
TOTAL OF ABOVE USES				
A: Alexis Creek	291	232	511	1034
B: Fraser Basin	1068	332	506	1906
C: Cariboo Plateau	2	1314	1705	3021
Total	1361	1878	2722	5961

Table 4.5

ALL SAMPLE AREAS COMBINED

SUMMARY TABLE FOR GOVERNMENT RESERVES:
LAND SUITABILITY BY PROJECTED 1983 LAND USE
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING				
A: Alexis Creek	9	0	0	9
B: Fraser Basin	7	1	0	8
C: Cariboo Plateau	0	0	3	3
Subtotal	16	1	3	20
ROUGH PASTURE & OPEN RANGE				
A: Alexis Creek	99	0	2	101
B: Fraser Basin	14	2	8	24
C: Cariboo Plateau	0	0	0	0
Subtotal	113	2	10	125
FORESTED AREAS				
A: Alexis Creek	34	85	61	180
B: Fraser Basin	865	250	351	1466
C: Cariboo Plateau	4	159	210	373
Subtotal	903	494	622	2019
TOTAL OF ABOVE USES				
A: Alexis Creek	142	85	63	290
B: Fraser Basin	886	253	359	1498
C: Cariboo Plateau	4	159	213	376
Total	1032	497	635	2164

Table 4.6

ALL SAMPLE AREAS COMBINED

SUMMARY TABLE FOR ALL STATUS CATEGORIES:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING				
A: Alexis Creek	1889	723	95	2707
B: Fraser Basin	7320	2052	1346	10718
C: Cariboo Plateau	302	2205	2955	5462
Subtotal	9511	4980	4396	18887
ROUGH PASTURE & OPEN RANGE				
A: Alexis Creek	1951	1464	2281	5696
B: Fraser Basin	1825	726	2015	4566
C: Cariboo Plateau	92	1557	1769	3418
Subtotal	3868	3747	6065	13680
FORESTED AREAS				
A: Alexis Creek	1811	3239	12561	17611
B: Fraser Basin	8803	8022	22303	39128
C: Cariboo Plateau	381	10925	15450	26756
Subtotal	10995	22186	50314	83495
TOTAL OF ABOVE USES				
A: Alexis Creek	5651	5426	14937	26014
B: Fraser Basin	17948	10800	25664	54412
C: Cariboo Plateau	775	14687	20174	35636
Total	24374	30913	60775	116062

[1] This table is the sum of Tables 4.1-4.5.

4.3 Revisions to SSCA Mapping

For that portion of the ALR lying outside of the sample areas, the base data on land suitability and use was derived from the 1:50,000 mapping of ALR lands carried out by Talisman for the SSCA in 1977 and 1978. For the purpose of the present study it was necessary to revise or re-interpret both the land use and the land capability elements of this mapping. Firstly, the land capability information presented in this mapping was re-assessed through a consensus process at a workshop held on February 13 and 14, 1984, attended by government and consultant personnel familiar with the regional soil, climate, water and agricultural resources.

4.3.1 Regional Workshop

The workshop format was similar to that used for sessions set up by Talisman during the first phase of the Cariboo study. Essentially it entailed bringing together specialists with extensive knowledge of the biophysical and agricultural resources of the region. Through a consensus of opinion approach, existing mapped information on agricultural capability was revised according to more recent knowledge which had not yet been presented in mapped form.

British Columbia Land Inventory (BCLI) ratings of Land Capability for Agriculture were aggregated into Classes 1 to 3, Class 4 and Class 5, on both an unimproved and improved basis, and the areas were transferred from 1:50,000 and 1:250,000 scale maps to 1:250,000 scale maps covering the Cariboo region. The aggregated areas were then hand coloured for use during the workshop.

The hand coloured 1:250,000 scale maps and the forty 1:50,000 scale SSCA maps showing revised agricultural capability ratings for the Cariboo ALRs as determined during the SSCA consensus workshops held in 1977, were reviewed by workshop participants and decisions were made as to what the relevant rating levels were. Generally, the decisions focussed on whether or not the improved or unimproved capability ratings should be used. As an example, for wetlands where drainage was deemed not to be

feasible because of topographic features which precluded economic development of an outlet, the unimproved rating was used. Similarly, if no water sources were available for irrigation, either because of a lack of surface and groundwater resources or because all sources were fully committed, the dryland rating was used. In all cases the group attempted to be optimistic towards agricultural potential and if existing knowledge of the particular area being considered was too scant to reasonably select or alter a rating, the improved BCLI ratings were used.

Other significant changes were made over fairly extensive areas, particularly in the Fraser Plateau, where BCLI mapping showed Class 3 and 4 ratings at elevations exceeding 900 m. For most areas exceeding this elevation capability classes were downgraded to the Class 4, 5 and 6 levels on the basis of climate.

The revised capability rating information was used to determine the relevant agricultural suitability classification according to the system used during Phase I for the sample area assessment.

The product of this workshop was a 1:250,000 map outlining areas of high, moderate, low and nil suitability for agriculture within the regional ALR. This map, and the suitability classification guidelines established at the workshop, were then used to revise the 1:50,000 SSCA mapping for all ALR lands within the region but outside of the sample area.

4.3.2 Re-Tabulation of SSCA Mapping

Tabular summaries of land use by land capability class are available by 1:50,000 map sheet (NTS grid) for the original SSCA mapping. For all map sheets containing portions of the Cariboo region ALRs, these summaries were revised according to the broad re-interpretations of agricultural capability/suitability defined at the regional workshop. Revisions were

transferred to the 1:50,000 map sheets by hand and estimates were made of the corresponding changes required in the tabular summaries. In estimating the required tabular adjustments, attention was placed on required revisions involving lands that were mapped by the SSCA as being cultivated in order that these changes were estimated carefully. For undeveloped lands, required changes were approximated more roughly. In many cases, a portion of the map in which capability/ suitability revisions had been made was digitized for its total area only and the component revisions required were estimated visually.

After all capability/suitability revisions were completed and re-tabulated, the individual map sheet tabular data were summed by suitability class for all of the ALR area excluding the sample areas. This summary was then modified by a process similar to that carried out for the sample area data. All cultivation was aggregated into one land use category, cultivation occurring within the nil suitability category was distributed into the areas of high, medium and low suitability according to the relative amounts of cultivation already indicated within these categories, and all remaining area estimates for lands classified as nil suitability, or areas classified as "water" or "non-productive" were deleted. The treatment of cultivation indicated to be occurring within the nil suitability category differs somewhat from the treatment accorded such lands in the revision of the Phase I findings because of differences in the mapping and digitizing procedures used in the two studies to deal with complex capability/suitability ratings.

The above revisions resulted in a tabular summary, for all of the region's ALR except the sample areas, of land use by agricultural suitability class. To this point, however, the land use data was based on the original SSCA mapping, and required updating in order to be of use to this study.

4.3.3 Updating of SSCA Land Use

Except for the Phase I work in the sample areas, no recent regional land use mapping has been carried out since the original SSCA mapping. In order to update the land use information contained in the SSCA mapping it was necessary to use development trends derived from a completely independent statistical base, the Census of Canada. While such a procedure is less than satisfactory, no alternative method is available that does not involve re-interpreting land use in the entire region based on recent aerial photography.

Because the SSCA mapping of cultivation (including improved pasture) correlates very closely with the amount of land reported to be under crops in the Census, the annual rate of increase in this variable between the 1976 and the 1981 Censuses, was chosen as the basis for updating the SSCA land use data. The annual growth factor for this variable was calculated to be 1.049 for the Cariboo Census Division, an area which closely approximates the Cariboo region. However, this growth rate is for the entire region, including the sample areas, where much higher growth rates have already been documented during approximately the same period, based on actual measurement of changes in the extent of mapped land use. The weighted average growth factor for all three sample areas combined is 1.089. In the original SSCA mapping, 9,475 ha of cultivation were mapped within these sample areas, compared to 27,050 ha within the entire Cariboo Census Division. If the 1.049 growth factor derived from Census statistics is assumed to be applicable to the entire area of cultivation mapped by the SSCA, and the 1.089 growth factor is applicable to the sample area cultivation, then a growth factor of 1.027 can be derived for all cultivation mapped by the SSCA within the Cariboo Census Division but excluding the sample areas. This growth factor has been used to update the land use data in the tabular summary of SSCA land use by agricultural suitability class for the portion of the regional ALR outside the sample areas, as outlined in the previous section. While the SSCA land use mapping is based on a wide range of photo dates, and was only field checked in a few areas, the land use mapping can be

considered to be dated no older than 1974. Accordingly, all area estimates of cultivation outside of the sample area were multiplied by the 1.027 growth factor nine times to project them to 1983. In a process similar to that carried out for updated Phase I findings, increases in the extent of cultivation were matched with decreases in the extent of rough pasture - open range and forested areas.

4.3.4 Regional Land Use and Suitability

Table 4.7 presents the adjusted SSCA data for all ALP lands, excluding the sample areas, with agricultural suitability after the above revisions and adjustments have been carried out. While these data represent the culmination of many qualitative interpretations regarding agricultural suitability as well as a procedure to update land use data without re-mapping, they are arguably the best estimates available for these lands, short of carrying out a detailed program of land inventory and land use mapping similar to that which produced the Phase I findings for the sample areas.

When the area estimates of Table 4.7, representing all agriculturally suitable ALR lands outside of the sample areas, are added to the subtotal entries of Table 4.6, representing updated Phase I findings for all of the sample areas combined, an updated tabular summary of 1983 land use by agricultural suitability class is produced for all suitable lands within the Cariboo ALR. This summary is presented in Table 4.8. This summary, and the summary of suitable lands within the sample areas (Table 4.6), form the basis for projecting use-suitability-status relationships observed in the sample area to the region.

4.4 Projection of Regional Summaries by Land Status Category

The portions of the region that were sampled in Phase I were not chosen randomly and do not constitute a representative sample of regional agricultural lands. These sample areas were chosen because of the availability of new or updated land inventory

Table 4.7

CARIBOO ALR EXCLUDING SAMPLE AREAS

SUMMARY TABLE FOR ALL STATUS CATEGORIES:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	3069	7325	10505	20899
ROUGH PASTURE & OPEN RANGE	2381	7299	25918	35598
FORESTED AREAS	3403	33152	169140	205695
TOTAL OF ABOVE USES	8853	47776	20563	262192

[1] Based on revised SSCA findings and an assumed annual growth factor for increases in cultivated land of 1.027 (1974-1983).

Table 4.8

CARIBOO ALR INCLUDING SAMPLE AREAS

SUMMARY TABLE FOR ALL STATUS CATEGORIES:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	12580	12305	14901	39786
ROUGH PASTURE & OPEN RANGE	6249	11046	31983	49278
FORESTED AREAS	14398	69736	219454	289190
TOTAL OF ABOVE USES	33227	78689	266338	378254

[1] Sum of Tables 4.6 and 4.7.

information that was available for these areas. In addition, these areas were of interest as centres of agricultural development within the region. For this reason, the intermediate products of the Phase I work, namely the mapping and statistical tabulations of the sample areas and sub-areas, were judged to be valuable for their documentation of agricultural land use patterns within these areas. Although this sample design precludes a statistically rigorous approach to projecting regional use-suitability-status aggregates, it does provide considerable data on use-suitability-status relationships in a large portion (18%) of the region, and it does provide some basis for carrying out an arithmetic extrapolation of these relationships to the region.

In order to carry out such an extrapolation a number of adjustment factors are needed to account for differences between the relative extent of land status categories in the sample area as compared to the region, and to fashion component projections for each status category which collectively compare closely to estimated regional aggregates of land use and suitability, as outlined in Table 4.8.

4.4.1 Land Status Coefficients

Based on published 1979-1983 land status mapping, staff at the Cariboo Regional Office generated estimates of the extent of alienated land (private land, plus Indian Reserves), agricultural leases with purchase options, and other leases and permits within the regional ALR. These area estimates, combined with SSCA estimates on the extent of government reserves and total ALR lands within the region (as approximated by the Cariboo Census Division - Cariboo Regional District), allow the estimation of the remaining status category, vacant Crown land. Based on these estimates of extent of all status categories within the regional ALR, it was then possible to calculate the relative proportion of each status category to the total, and by carrying out corresponding calculations using Phase I findings, to compare these proportions for the region to the proportions actually sampled in Phase I. Table 4.9 details this comparison (under the heading LAND STATUS COEFFICIENTS). Based on this comparison,

status ratio factors have been calculated. These factors, which reflect the proportion of each status category within the region compared to its proportion within the sample area, were used to adjust regional projections made from the sample area data so that the projections correspond to the known extent of each status category.

The status ratio factors for vacant Crown land, alienated land, and other leases and permits were reasonably close to unity, indicating that the sample area was quite representative for these categories. For the remaining categories, however, the sample area was very unrepresentative, containing a much higher proportion of agricultural leases and a much lower proportion of government reserves (because of the large Meldrum Creek Military Reserve outside the sample area).

4.4.2 Land Use Coefficients

Table 4.9 also details (under the heading USE-SUITABILITY COEFFICIENTS) corresponding area estimates for the region and the sample area for each use-suitability combination. These values are drawn from Tables 4.8 and 4.6, respectively. For each combination the ratio of the area estimates has been calculated. These factors were used to adjust regional projections made from the sample area data in an initial attempt to have the projections of land use within all individual status categories approximate the estimated total amount of each land use category within the region, as detailed in Table 4.8. However, these adjustment factors would only produce the desired result if the land status categories encountered in the sample area constituted a perfect representation of use-suitability-status occurring within the region. As outlined in the previous section, this is not the case. This situation necessitates the use of an additional set of adjustment factors, also portrayed in Table 4.9 (under the heading LAND USE COEFFICIENTS). These factors, one for each land use category, when used in conjunction with the other adjustment factors presented in Table 4.9, ensure that the regional projections of

Table 4.9

ADJUSTMENT FACTORS USED TO DERIVE REGIONAL PROJECTIONS

LAND STATUS COEFFICIENTS

Status Category	Regional ALR		Sample Area ALR		Status Ratio Factor
	(ha)	(%)	(ha)	(%)	
Vacant Crown Land	614508	65.3	97654	58.5	1.116
Alienated Land	244985	26.0	54028	32.4	0.802
Agric. Leases with Options	9253	1.0	5068	3.0	0.333
Other Leases and Permits	40224	4.3	7268	4.4	0.977
Government Reserves	32330	3.4	2845	1.7	2.000
All ALR Lands	941300	100.0	166863	100.0	

USE-SUITABILITY COOEFFICIENTS

Present Land Use	Agricultural Suitability		
	High	Moderate	Low
Cultivation & Clearing			
Region	12580	12305	14901
Sample Area	9511	4980	4396
Adjustment Coefficients	1.323	2.471	3.390
Rough Pasture & Open Range			
Region	6249	11046	31983
Sample Area	3868	3747	6065
Adjustment Coefficients	1.616	2.948	5.273
Forested Areas			
Region	14398	69736	219454
Sample Area	10995	22186	50314
Adjustment Coefficients	1.310	3.143	4.362

LAND USE COEFFICIENTS

Cultivation & Clearing	1.240
Rough Pasture & Open Range	1.137
Forested Areas	0.920

land use within each status category total the estimated amount of use within the region. These last factors have been calculated by carrying out the regional projections without using them and comparing the results to the regional land use totals presented in Table 4.8. Alternatively, suitability totals could have been used as the basis for making this last adjustment. The choice of the variable to be used in carrying out this adjustment depends on whether it is more desirable to have land use projections conform to known estimates of regional land use, at the expense of some divergence between projected and estimated suitability totals, or the converse. In this case, projected regional land use totals were adjusted so that they equated with the direct estimates of land use presented in Table 4.8.

This extrapolation method amounts to using a combination of one dimensional (status) and two dimensional (use versus suitability) comparisons between the sample area and the region to project observed three-dimensional (use-suitability-status) relationships in the sample area to the region. A check is then made of the resulting divergence between projected and estimated regional values for total land use (or alternatively total suitability) and a further one-dimensional adjustment is carried out. The reason that the three-dimensional relationships observed in the sample area cannot be extrapolated directly based only on the portion of the area sampled (18%) is because the sample area is known to be unrepresentative of the region. If such a projection were carried out it would, for example, result in 4.2 times more regional land being projected within the high suitability class than is estimated to exist, 1.7 times more land with any agricultural suitability than is estimated to occur, and 2.7 times more regional cultivation than is estimated to exist. Such a projection would be of no use in the assessment of regional agricultural land characteristics.

4.4.3 Projection Methods

In order to project the use-suitability-status relationships observed in the sample area to the region, the appropriate area estimates contained in Tables 4.1-4.5 (land use by suitability class within the combined sample area, for each status category) were multiplied by the appropriate land status coefficient, then by the appropriate use-suitability coefficient, then the appropriate land use adjustment coefficient. As an example, the area of high suitability forested lands within the vacant Crown status category is indicated to be 2673 ha for all sample areas combined. To project this value to the region, this area was multiplied by 1.116, the status adjustment coefficient for vacant Crown lands, then by 1.310, the use-suitability coefficient for high suitability forested area, then by 0.920, the land use adjustment coefficient for forested lands. The value produced, 3595 ha, was then recorded as the amount of high suitability, vacant Crown, forested lands within the region. All other sample area data were processed in this manner. The regional summary tables derived through these calculations represent the desired end product of this phase of the study. These tables are presented and discussed in the following chapter.

4.5 Methodological Considerations

For any similar work carried out in different areas in the future, the following methodological revisions are proposed for consideration:

* sample areas should be chosen that are as representative as possible of the distribution of status types, suitable lands, and land uses found in the region. Areas with very recent aerial photography are preferable;

* if BCLI/SSCA data on land capability is to be used as a basis for defining regional agricultural suitability, even more emphasis should be placed on regional consensus workshops to provide a realistic assessment. The basis for such workshops should be the existing 1:50,000 BCLI and SSCA mapping. Consensus workshops to address

regional suitability should employ suitability methodology consistent with that used in any sample areas. If possible, agricultural suitability for all areas should be addressed at the same time by the same workshop participants; and

* only two status categories should be used - "alienated or reserved", and "available for alienation", given the difficulties that minor status categories cause in any extrapolation procedure. If specific information is required for the less extensive status categories, then universal surveys should be considered for these areas.

5.0 DERIVED REGIONAL STATISTICS

5.1 Regional ALR Statistics

Tables 5.1-5.5 present the regional projections of land suitability by estimated 1983 land use for each land status category. These tables have been derived based on the findings of the Phase 1 program in the sample areas and using the extrapolation methods outlined in the previous chapter.

For comparison purposes, Table 5.6 which is the sum of Tables 5.1-5.5 has also been provided. Had the extrapolation process led to no inaccuracies, the individual area estimates in this table would be exactly the same as those in Table 4.8, presented earlier. While this is not the case, individual values are judged to correspond closely enough for the purposes of this study. The greatest difference observed is 8.5%, and most values deviate by considerably less. Because of the method by which these regional extrapolations were carried out, the high degree of error possible even within the sample area data where detailed mapping was carried out, and the even higher degree of error possible through adjusting and re-interpreting the SSCA data for the remaining portions of the region, considerable care must be taken in interpreting and using these derived statistics. Actual values could vary by 10% or more from the values indicated. In particular, the tables for agricultural leases with purchase options and for government reserves are the least useful because of the sample area chosen.

However, for the purposes of drawing broad conclusions concerning the availability and degree of development of suitable agricultural lands within the Cariboo, particularly for the vacant Crown and alienated status categories, these statistics should be useful and their accuracy within the limits required.

5.2 Discussion

In examining the derived regional statistics, four apparent aberrations are evident in the data. These involve the high amount of cultivation and clearing indicated on vacant Crown lands, the high amount of cultivation indicated on high suitability alienated lands within the sample area compared to the rest of the region, the high amount of agriculturally suitable alienated lands within the sample area compared to the

rest of the region, and the low amount of cultivation and clearing indicated in the region compared to corresponding Census statistics.

The first of these items is a reflection of the Phase 1 findings which also indicated a high amount of cultivation occurring on vacant Crown lands within the sample area. This situation is due to errors in status mapping and in transferring status mapping to the composite maps produced. Additional error may have occurred in transferring interpreted land use to the composite maps. Air photo distortion and the method of transfer did not allow for complete horizontal control of land use polygons. Some digitizing error is also possible. While some trespass use of Crown lands undoubtedly exists in the region it is very unlikely that it amounts to even a small portion of the use indicated in Table 3.1. One possible measure to deal with this situation would be to transfer this entire line of data to the summary table for alienated land.

The second item is a valid finding given the differences between the sample area and the remainder of the Cariboo. High suitability agricultural land in the Cariboo Region is largely confined to the lowlands of the Fraser Basin and the Chilcotin Valley. Much of this land was included within the Fraser Basin and Alexis Creek sample areas. This is evident when comparing the totals for high suitability land indicated in Table 4.6, for the sample area, and Table 4.8, for the entire region. The sample areas are reported to contain 24,374 ha of high suitability lands within all status classes. This amounts to over 73% of the 33,227 ha reported within the region. In light of this statistic, it is not particularly surprising or unusual to note that the reported 17,880 ha of high suitability land occurring in alienated areas within the sample areas, as indicated in Table 4.2, represents approximately 82% of the 21,887 ha of high suitability lands reported on alienated areas within the region, as outlined in Table 4.2.

Similarly, it is not too surprising to note the relative proportions of suitable alienated lands (high, moderate, and low suitability classes combined) within the sample area and within the rest of the Cariboo given the corresponding proportions of suitable lands within all the status categories combined. From

Tables 4.8 and 4.9, it is possible to estimate that all suitable lands (for all status categories) comprise 378,300 ha, or 40.2% of the regional ALR. From Table 4.6 and Table 3A.1, it is estimated that suitable lands within the sample area only comprise 116,000 ha, or 69.5% of the sample area ALR. These statistics indicate that suitable regional lands outside of the sample area comprise 262,300 ha, or 33.9% of the total ALR lands. These statistics are derived directly from the Phase 1 and 2 agricultural suitability assessments, and are only as good as those assessments, which relied heavily on consensus re-interpretation of land inventory information. If these assessments are accepted as the best possible without actually carrying out additional regional land inventory work, then the projection of corresponding statistics for alienated lands logically follows.

Within the Cariboo, Table 5.2 projects 106,347 ha of suitable land, comprising 43.3% of all estimated alienated regional ALR lands (Table 4.9). Within the sample area alone, the Phase 1 study documented 45,261 ha of suitable alienated lands (Table 4.2), representing 83.8% of all sample area alienated lands. These statistics indicate that suitable alienated lands in the remainder of the Cariboo ALR outside of the sample area comprise 61,000 ha, or only 31.9% of total ALR alienated lands in this portion of the region. These figures are very much in line with the above figures for all status categories combined. While it is possible that differences between the Phase 1 and Phase 2 suitability assessments may have resulted in some over emphasis of the difference between the relative proportions of suitable lands to total lands in the sample area compared to the rest of the Cariboo, the broad conclusions presented by these statistics are still thought to be valid. These conclusions are as follows:

* the proportion of suitable lands to total lands (all status categories combined) within the sample area ALR is considerably higher than the corresponding proportion for the rest of the region;

* the proportion of sample area alienated lands that is agriculturally suitable is very high; and

* the proportion of alienated ALR lands outside of the sample area that is agriculturally suitable is relatively low.

The difference between the total regional area of cultivation and clearing reported in this study compared to recent Census statistics on improved land, appears to be largely explained by differences in classification. While both the Phase 1 and SSCA land use classifications included improved pasture within the category of cultivated lands, only those areas of improved pasture which showed signs of being actively cultivated (cleared, plowed, disced and seeded) were so classified. All other pasture areas, including all rangeland areas were classified into the rough pasture - open range (SSCA: grassland and pasture) or forested categories. The 1981 Census of Agriculture, however, defines improved pasture as "including pasture or grazing land, improved by seeding, draining, irrigating, fertilizing, or brush or weed control". Because of this broad definition, it is likely that respondents would have included most of their private rangeland areas within this category. If this is so, it would be expected that the area of cultivation and clearing identified in this study would compare much more closely to the area reported in the Census as being under crops. This is the case, with 39,806 ha of cultivation and clearing reported in the Cariboo in 1983 (Table 5.6) compared to 45,642 ha reported under crops in the Cariboo Census Division in 1981. The Cariboo Census Division constitutes a larger agricultural region in that it contains some agricultural lands outside of the region (for example, the Hixon area) and it also includes agricultural land outside of the ALR, which were not considered in this study.

Table 5.1

CARIBOO REGIONAL ALR

DERIVED SUMMARY TABLE FOR VACANT CROWN LAND:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	538	424	737	1699
ROUGH PASTURE & OPEN RANGE	1225	2413	14687	18325
FORESTED AREAS	3595	46765	166938	217298
TOTAL OF ABOVE USES	5358	49602	182362	237322

[1] Based on Tables 4.1 and 4.9

Table 5.2

CARIBOO REGIONAL ALR

DERIVED SUMMARY TABLE FOR ALIENATED LAND:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	11931	11011	12730	35672
ROUGH PASTURE & OPEN RANGE	4183	6514	14602	25299
FORESTED AREAS	5773	11277	28326	45376
TOTAL OF ABOVE USES	21887	28802	55658	106347

[1] Based on Tables 4.2 and 4.9

Table 5.3

CARIBOO REGIONAL ALR

DERIVED SUMMARY TABLE FOR AGRICULTURAL LEASES WITH OPTIONS:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	48[2]	144[2]	337	529
ROUGH PASTURE & OPEN RANGE	91[2]	479[2]	798	1369
FORESTED AREAS	418[2]	973[2]	2053	3444
TOTAL OF ABOVE USES	557	1596	3188	5341

[1] Based on Tables 4.3 and 4.9.
[2] Adjustments were made to calculation to ensure that regional total was not less than sample area total.

Table 5.4

CARIBOO REGIONAL ALR

DERIVED SUMMARY TABLE FOR OTHER LEASES AND PERMITS:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	151	773	899	1823
ROUGH PASTURE & OPEN RANGE	429	838	2478	3745
FORESTED AREAS	1211	3853	8155	13219
TOTAL OF ABOVE USES	1791	5464	11532	18787

[1] Based on Tables 4.7 and 4.9

Table 5.5

CARIBOO REGIONAL ALR

DERIVED SUMMARY TABLE FOR GOVERNMENT RESERVES:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	52	6	25	83
ROUGH PASTURE & OPEN RANGE	415	14	119	548
FORESTED AREAS	2177	2857	4992	10026
TOTAL OF ABOVE USES	2644	2877	5136	10657

[1] Based on Tables 4.5 and 4.9.

Table 5.6

CARIBOO REGIONAL ALR

DERIVED SUMMARY TABLE FOR ALL STATUS CATEGORIES:
LAND SUITABILITY BY PROJECTED 1983 LAND USE[1]
(ALR areas, in hectares)

PRESENT LAND USE	LAND WITH AGRICULTURAL SUITABILITY			
	HIGH	MODERATE	LOW	TOTAL
CULTIVATION & CLEARING	12720	12358	14728	39806
ROUGH PASTURE & OPEN RANGE	6343	10258	32684	49285
FORESTED AREAS	13174	65725	210464	289363
TOTAL OF ABOVE USES	32237	88341	257876	378454

[1] Based on Tables 4.10 and 4.14

APPENDIX A
CARIBOO PLATEAU SUB-AREA STATISTICS

BIG CAMP CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.1
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	63	54	75	0	192
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	125	103	192	0	420
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	1526	1876	5250	0	8652
NP NON-PRODUCTIVE LANDS	0	90	122	417	175	804
TOTAL	0	1804	2155	5934	175	10068

Table A.2
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of Sample Sub-Area ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	0	1429	1756	5227	168	8580
PRIVATE LAND, INDIAN RESERVES	0	200	144	287	7	638
AGRICULTURAL LEASE WITH OPTION	0	155	234	333	0	722
OTHER LEASES AND PERMITS	0	19	8	46	0	73
GOVERNMENT RESERVES	0	1	13	41	0	55
TOTAL	0	1804	2155	5934	175	10068

BIG CAMP CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.3
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	4	105	80	0	3	192
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	92	141	176	11	0	420
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	7830	279	435	56	52	8652
NP NON-PRODUCTIVE LANDS	654	113	31	6	0	804
TOTAL	8580	638	722	73	55	10068

Table A.4
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(84% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	1	1	2	0	4
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	24	26	42	0	92
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	1341	1645	4844	0	7830
NP NON-PRODUCTIVE LANDS	0	63	84	339	168	654
TOTAL	0	1429	1756	5227	168	8580

BIG CAMP CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.5
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(6% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	54	20	31	0	105
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	49	27	65	0	141
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	79	69	131	0	279
NP NON-PRODUCTIVE LANDS	0	18	28	60	7	113
TOTAL	0	200	144	287	7	638

Table A.6
AGRICULTURAL LEASE WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(7% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	8	32	40	0	80
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	50	49	77	0	176
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	89	144	202	0	435
NP NON-PRODUCTIVE LANDS	0	8	9	14	0	31
TOTAL	0	155	234	333	0	722

BIG CAMP CREEK

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.7
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(1% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	0	0	0	0
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	2	1	8	0	11
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	10	6	34	0	56
NP NON-PRODUCTIVE LANDS	0	1	1	4	0	6
TOTAL	0	19	8	46	0	73

Table A.8
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(1% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	1	2	0	3
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	0	0	0	0	0
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	1	12	39	0	52
NP NON-PRODUCTIVE LANDS	0	0	0	0	0	0
TOTAL	0	1	13	41	0	55

BIG & HART LAKES

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.9
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	632	758	82	0	1472
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	486	491	96	0	1073
C AGRICULTURAL CLEARING IN PROGRESS	0	1	6	1	0	8
F FORESTED AREAS	0	2047	2796	4740	0	9583
NP NON-PRODUCTIVE LANDS	0	44	119	663	353	1179
TOTAL	0	3210	4170	5582	353	13315

Table A.10
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of Sample Sub-Area ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	0	831	1203	3832	323	6189
PRIVATE LAND, INDIAN RESERVES	0	1660	2120	958	30	4768
AGRICULTURAL LEASE WITH OPTION	0	249	231	96	0	576
OTHER LEASES AND PERMITS	0	383	481	547	0	1411
GOVERNMENT RESERVES	0	87	135	149	0	371
TOTAL	0	3210	4170	5582	353	13315

BIG & HART LAKES

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.11
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC. LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	4	1328	63	77	0	1472
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	22	704	243	104	0	1073
C AGRICULTURAL CLEARING IN PROGRESS	0	8	0	0	0	8
F FORESTED AREAS	5686	2147	261	1118	371	9583
NP NON-PRODUCTIVE LANDS	477	581	9	112	0	1179
TOTAL	6189	4768	576	1411	371	13315

Table A.12
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(46% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	4	0	0	4
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	9	8	5	0	22
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	821	1172	3693	0	5686
NP NON-PRODUCTIVE LANDS	0	1	19	134	323	477
TOTAL	0	831	1203	3832	323	6189

BIG & HART LAKES

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.13
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(36% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	593	663	72	0	1328
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	304	341	59	0	704
C AGRICULTURAL CLEARING IN PROGRESS	0	1	6	1	0	8
F FORESTED AREAS	0	731	1021	395	0	2147
NP NON-PRODUCTIVE LANDS	0	31	89	431	30	581
TOTAL	0	1660	2120	958	30	4768

Table A.14
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(4% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	26	34	3	0	63
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	149	77	17	0	243
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	73	116	72	0	261
NP NON-PRODUCTIVE LANDS	0	1	4	4	0	9
TOTAL	0	249	231	96	0	576

BIG & HART LAKES

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.15
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(11% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	13	57	7	0	77
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	24	65	15	0	104
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	335	352	431	0	1118
NP NON-PRODUCTIVE LANDS	0	11	7	94	0	112
TOTAL	0	383	481	547	0	1411

Table A.16
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(3% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	0	0	0	0
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	0	0	0	0	0
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	87	135	149	0	371
NP NON-PRODUCTIVE LANDS	0	0	0	0	0	0
TOTAL	0	87	135	149	0	371

MIOCENE

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.17
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	977	1127	54	0	2158
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	433	820	22	0	1275
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	4049	9005	461	0	13515
NP NON-PRODUCTIVE LANDS	0	27	176	420	422	1045
TOTAL	0	5486	11128	957	422	17993

Table A.18
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of Sample Sub-Area ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	0	2445	5313	390	422	8570
PRIVATE LAND, INDIAN RESERVES	0	2025	3825	352	0	6202
AGRICULTURAL LEASE WITH OPTION	0	149	785	66	0	1000
OTHER LEASES AND PERMITS	0	804	1143	125	0	2072
GOVERNMENT RESERVES	0	63	62	24	0	149
TOTAL	0	5486	11128	957	422	17993

MIOCENE

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.19
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC. LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	73	1706	63	316	0	2158
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	148	945	59	123	0	1275
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	7676	3307	839	1568	125	13515
NP NON-PRODUCTIVE LANDS	673	244	39	65	24	1045
TOTAL	8570	6202	1000	2072	149	17993

Table A.20
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(48% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	22	51	0	0	73
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	68	80	0	0	148
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	2352	5106	218	0	7676
NP NON-PRODUCTIVE LANDS	0	3	76	172	422	673
TOTAL	0	2445	5313	390	422	8570

MIOCENE

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.21
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(34% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	738	920	48	0	1706
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	280	646	19	0	945
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	987	2182	138	0	3307
NP NON-PRODUCTIVE LANDS	0	20	77	147	0	244
TOTAL	0	2025	3825	352	0	6202

Table A.22
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(6% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	5	58	0	0	62
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	8	48	3	0	59
C AGRICULTURAL CLEARING IN PROGRSS	0	0	0	0	0	0
F FORESTED AREAS	0	136	667	36	0	839
NP NON-PRODUCTIVE LANDS	0	0	12	27	0	39
TOTAL	0	149	785	66	0	1000

MIOCENE

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.23
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(12% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	212	98	6	0	316
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	77	46	0	0	123
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	0	511	991	66	0	1568
NP NON-PRODUCTIVE LANDS	0	4	8	53	0	65
TOTAL	0	804	1143	125	0	2072

Table A.24
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(1% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	0	0	0	0
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	0	0	0	0	0
C AGRICULTURAL CLEARING IN PROGRSS	0	0	0	0	0	0
F FORESTED AREAS	0	63	59	3	0	125
NP NON-PRODUCTIVE LANDS	0	0	3	21	0	24
TOTAL	0	63	62	24	0	149

HORSEFLY

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.25
SUMMARY TABLE: LAND SUITABILITY BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	277	349	451	101	0	1178
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	96	572	417	41	0	1126
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	402	3427	2031	732	0	6592
NP NON-PRODUCTIVE LANDS	25	111	145	741	168	1190
TOTAL	800	4459	3044	1615	168	10086

Table A.26
SUMMARY TABLE: LAND SUITABILITY CLASS BY LAND STATUS CATEGORY
(100% of Sample Sub-Area ALR Lands)

LAND STATUS CATEGORY	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
VACANT CROWN LAND	28	2659	1460	1063	168	5378
PRIVATE LAND, INDIAN RESERVES	736	1187	1296	490	0	3709
AGRICULTURAL LEASE WITH OPTION	30	481	208	16	0	735
OTHER LEASES AND PERMITS	2	124	76	45	0	247
GOVERNMENT RESERVES	4	8	4	1	0	17
TOTAL	800	4459	3044	1615	168	10086

HORSEFLY

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.27
SUMMARY TABLE: LAND STATUS BY PRESENT LAND USE
(100% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND STATUS CATEGORY					
	VACANT	DEEDED	AGRIC. LEASE	OTHER LEASE	GOV'T RES.	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	16	1054	108	0	0	1178
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	122	696	229	79	0	1126
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	4377	1665	389	145	16	6592
NP NON-PRODUCTIVE LANDS	863	294	9	23	1	1190
TOTAL	5378	3709	735	247	17	10086

Table A.28
VACANT CROWN LAND: LAND SUITABILITY BY PRESENT LAND USE
(53% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	13	3	0	16
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	46	71	5	0	122
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	28	2536	1288	525	0	4377
NP NON-PRODUCTIVE LANDS	0	77	88	530	168	863
TOTAL	28	2659	1460	1063	168	5378

HORSEFLY

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A.29
PRIVATE LAND & INDIAN RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(37% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	277	287	400	90	0	1054
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	87	307	266	36	0	695
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	349	560	577	179	0	1665
NP NON-PRODUCTIVE LANDS	23	33	53	185	0	294
TOTAL	736	1187	1296	490	0	3709

Table A.30
AGRICULTURAL LEASES WITH OPTION: LAND SUITABILITY BY PRESENT LAND USE
(7% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	62	38	8	0	108
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	9	158	62	0	0	229
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	19	260	104	6	0	389
NP NON-PRODUCTIVE LANDS	2	1	4	2	0	9
TOTAL	30	481	208	16	0	735

HORSEFLY

AGRICULTURAL LAND RESERVE AREAS IN HECTARES BY:
LAND STATUS, SUITABILITY CLASS, AND PRESENT LAND USE

Table A,31
OTHER LEASES & PERMITS: LAND SUITABILITY BY PRESENT LAND USE
(2% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	0	0	0	0
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	61	18	0	0	79
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	2	63	58	22	0	145
NP NON-PRODUCTIVE LANDS	0	0	0	23	0	23
TOTAL	2	124	76	45	0	247

Table A,32
GOVERNMENT RESERVES: LAND SUITABILITY BY PRESENT LAND USE
(<1% of Sample Sub-Area ALR Lands)

PRESENT LAND USE	LAND SUITABILITY FOR AGRICULTURE					
	HIGH	MODERATE	LOW	NIL	WATER	TOTAL
G FORAGES, GRAINS, IMPROVED PASTURE	0	0	0	0	0	0
H HORTICULTURE, ROW CROPS	0	0	0	0	0	0
P ROUGH PASTURE, OPEN RANGE	0	0	0	0	0	0
C AGRICULTURAL CLEARING IN PROGRESS	0	0	0	0	0	0
F FORESTED AREAS	4	8	4	0	0	16
NP NON-PRODUCTIVE LANDS	0	0	0	1	0	1
TOTAL	4	8	4	1	0	17

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MAPS NOT

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OMISES